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ABSTRACT

This document, one in a series developed to provide technical assistance to 22 Long-Term Care Gerontology Centers, describes the current administrative and structural phenomenon of these centers. Precedents useful in assessing both the current climate and actual prospects for development of long term care centers are cited. The first section describes the centers concept which includes three interrelated theories: matrix theory, the theory of innovation, and the theory of team development. The structure and governance of a center are also addressed. (RC)

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ISSUES IN THE DEVELOPMENT OF LONG TERM CARE GERONTOLOGY CENTERS: THE CENTERS CONCEPT

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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Selected Topics in Long Term Care

Volume 6

Issues in the Development of Long Term Care Gerontology Centers
The Centers Concept

Prepared by ELM Services, Inc.

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Center: An administrative or structural model usually found in an academic setting which is designed to perform, facilitate, or administer, in an interdisciplinary manner, research, training, and public service tasks.

I. INTRODUCTION

In October, 1979, the Administration on Aging of the Department of Health, Education, and Welfare funded a series of twenty-two Long Term Care Gerontology Center planning grants. The Administration's decision to fund such centers represented a reorientation of funds previously directed (under Title IV-E, Section 441 of the Older Americans Act, 1978 Amendments), to Multidisciplinary Centers of Gerontology. The enabling legislation, which was first enacted and funded in 1976, provided for grants to "public and nonprofit agencies, organizations and institutions for the purpose of establishing or supporting multidisciplinary centers of gerontology, and gerontology centers of special emphasis including health income maintenance, housing, service delivery and utilization, preretirement and retirement and long-term care and alternatives."[1] Under the new formulation, Multidisciplinary Centers of Gerontology are reconceptualized: it is now required that they be organized around one of the areas of special emphasis cited above (i.e., Long Term Care). The Administration on Aging Guidelines for Preparation of Grant Applications specify this reorientation and set forth the first priority among the areas of special emphasis:

> The IV-E program will be redirected toward establishing and supporting multidisciplinary gerontology centers that concentrate their activities on particularly interrelated, significant issues of national policy scope and of serious concern to older people. These Program Guidelines set forth AoA's first priority under the recast Title IV-E program, namely, the development of multidisciplinary gerontology centers oriented around the continuum of community based health and social services to the chronically impaired aging person.[2]

Thus, a Long Term Care Gerontology Center will be multidisciplinary in scope and thematic in focus. Administratively, it will represent a collaborative effort of medical schools, other health and social service professional schools, and service delivery agencies. Its task will be to develop an integrated program of interdisciplinary research (both basic and applied), interdisciplinary training and interdisciplinary service delivery. Specifically, the Long Term Care Gerontology Center will attempt to develop new models of: comprehensive service delivery to the chronically impaired aged; training in interdisciplinary service delivery for a variety of health, mental health, and social service professionals; and of continuing education for health, mental health, and social service professionals working with the chronically impaired aged. Finally, it will provide information on the problems of the chronically impaired aged to consumers and policy makers and will render technical assistance to service providers in its community and the surrounding region.

In the view of the Administration on Aging, efforts to inform the development of Long Term Care Gerontology Centers require two approaches: that of process (i.e., centers development) and that of content (i.e., gerontology). The process of doing interdisciplinary research, training, and services delivery has now been assigned to a "center," a relatively new type of administrative structure rooted in the matrix theory of organizational design and intended to approach research, training, and service delivery bilaterally, from both disciplinary and interest area perspectives.

Centers have developed, largely since World War II, as one aspect of the diversification of the academic complex, and in response to an increasing number of interdisciplinary areas of study, from areas as disparate as water resources and medieval studies.

Gerontology has also developed in this period into one of the areas most demanding of an interdisciplinary approach. Increasingly, in the last few years, the response of our health, mental health, and social service delivery systems to the needs of the elderly has been indicted in the gerontological literature. The literature has cited fragmentation, or gaps, in available services, and lack of coordination or continuity among existing services. It has offered as an alternative and a goal the example of several European countries which deal with similar challenges in a more comprehensive way. The Long Term Care Gerontology Center will attempt to incorporate some of these approaches in order to ameliorate the fragmentation and discontinuity of services and to deal with the multiple problems of the chronically imparied elderly in a multidisciplinary and wholistic way.

This issue paper will describe the current administrative and structural phenomenon of centers and their application in new centers. Secondly, it will cite precedents which might be valuable in assessing the current climate and actual prospects for development of centers in long term care.

This description of the centers concept will deal first with three interrelated bodies of theory: matrix theory, the theory of innovation, and the theory of team development. Second, it will address the structure and governance of a center. Finally, it will review precedents in center development which may contain lessons for the current effort.

II. CENTERS THEORY

Centers theory, as noted above, is a hybrid of three bodies of theory: the matrix theory of organizational design, the theory of innovation in organizations, and the theory of team development in organizations.

A. Matrix Theory

The theoretical bases for center development are found in the field of organizational design. During the 1970's, traditional line-staff or functional organizational designs proved increasingly unequal to the highly specialized and interdisciplinary tasks before them. As a result, organizations began to be transformed into "matrix" structures.

A matrix structure is an organization in which a set or project or task structures (output structures) is superimposed on a set of facilitaties or resources structures.[3] In a matrix structure, therefore, work is task-oriented, and administration is able to reallocate resources as projects or task requirements change. Leadership, authority and day-to-day management thus originate at the head of both task groups and resources groups, and effective functioning becomes dependent on their ability to cooperate in achieving common goals.

The matrix organization has been described as a response to emergent technological and social organization requirements, and a move away from the status quo of hierarchical structure.[4] Technical specialists group themselves in teams to address a specific task, and depending on the nature of the task, teams may be reformulated. Specialists may take on a leadership or participant role. This flexible redeployment of staff facilitates the best possible utilization of their skills and makes it easier for the organization to adjust to technological innovations.

The transformation of a traditional organization into a matrix is a process requiring from five to eight years and necessitating the training of staff to enable them to function with both individual expertise (i.e., autonomy) and as a team (i.e., cooperation).

In yet another dimension, the origins of matrix organizational structure may be traced to government contracting practices in the aerospace industry in the early 1960's which required project organization.[5] Om this actualization, a matrix becomes a "dual mapping" of an organization. In other words, the administrative map of an organization produces a hierarchy; simultaneously, a technological map of an organization highlights the peer relationships necessary for cooperation in technical tasks. The matrix then, is the overlay of these two maps.[6] Figure 1 describes a matrix structure. Lateral or peer channels of communication and cooperation exist in every organization. What distinguishes a true matrix organization, then, is the formalization and even reliance upon these usually informal and even underground mechanisms.

The increasing dominance of matrix organizations has been stimulated by "interorganizational cooperation (which) has increased the internal complexity of the operations of organizations;" another contributing factor is "the continous presence of a change gradient associated with innovation."[7] The major impacts of this development are in the areas of decision-making and leadership: the bilateral authority implied by a matrix organization can be challenging for both the leaders and the led. Managers are forced to spend more time in coordinative and cooperative efforts in order to assure that common goals and methods are agreed to and acted upon. If this sort of unity is not achieved, staff may be caught in the vise of trying to reconcile the divergent demands and expectations of their project leader and their disciplinary leader. But by the same token, the matrix structure for the first time provides a structure which involves technical (non-management) personnel in the innovative process.

FIGURE 1

SIMPLE MATRIX STRUCTURE

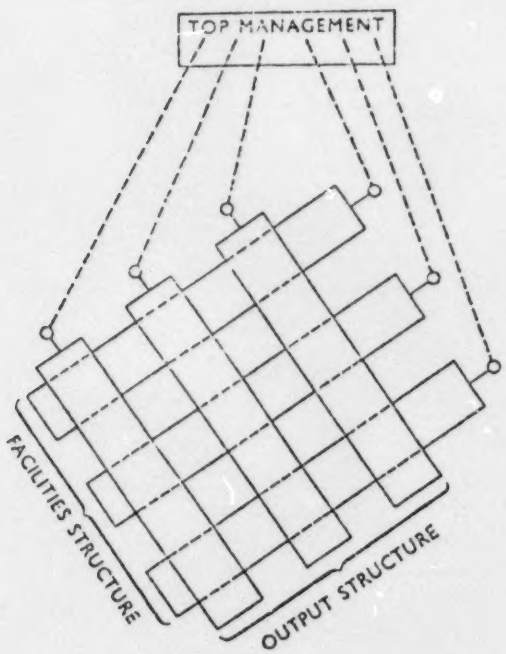


Figure 1 allows us to assign a variety of administrative facilities or resources structures to the upper right axis. It should be pointed out, too, that not all organizations calling themselves centers have assumed a matrix organization. However, an project organization which requires interdisciplinary input immediately leads the observer to suspect that particular organization is in a developmental process, moving in the direction of a matrix. If the conceptual ground between a line-staff organization and a

matrix organization is a continuum, organizations calling themselves "centers" must find themselves at many points on that continuum. The challenge of the new Long Term Care Gerontology Centers seems rather to be the creation of a matrix de novo. Knowing what we do about theoretical matrix structure, keeping in mind several precedents of centers in the health field, and accepting the administrative and task categories inherent in the requirements of the funding source, Long Term Care Gerontology Center developers should ideally know in advance the strengths the concept possesses and the pitfalls they face in forming a matrix center.

B. The Theory of Innovation

One reason that centers development and formation has received so much attention and support in recent years is that the center structure appears to facilitate the development of innovations, a crucial quality in innovation-laden times.

A 1972 study by the National Institute of Mental Health[8] examined the problem of utilization of research (and the innovations resulting from it) by practitioners. This paper first examined the characteristics of an innovation which have an impact on its acceptance; the paper describes as most likely to be successful an innovation which proposes a potential solution to a persistant problem, thus offering observable rewards, and one which is easy to understand, easy to pilot test and easy to withdraw if unsuccessful. Compatibility with established values, norms, procedures, and facilities is also important.

Even more important than these qualities of innovation are organizational characteristics which determine an organization's susceptibility to change. The National Institute of Mental Health study enumerates nine categories of organizational characteristics which can have an impact on innovation.[9]

1. Organizational Climate: NIMH defines a receptive organizational climate as one in which there is "free communication, of both a formal and informal nature, flowing up and down hierarchical lines and horizontally among colleagues."[10] Administrators and colleagues should be perceived as supportive of innovation, and should act to reinforce and reward innovation. Similarly, participatory decision-making is usually the rule in organizations receptive to innovation.

2. Organizational Goals: As a concomitant of participatory decision-making, organizational goals in an innovative organization are understood and accepted by system members. Goal-setting should aim at realistic and achievable goals. Written statements of organizational goals are particularly useful in reducing uncertainty in an innovative period.

3. Organizational Structure: The NIMH study points out that both extremely hierarchical and extremely decentralized organization can inhibit innovation by virtue of their structure. The report suggests that the most innovative organizational structures are those with a multiplicity of disciplines and specialties and cooperative relationships with other agencies. This decreases departmental autonomy.

4. Organizational Size: The NIMH study cites a variety of studies which support the idea that large organizations are often able to be more innovative than small organizations. It is probable that size does not act independently, but has an intervening impact on some of the other organizational variables discussed here

5. Organizational Level of Funding: Similarly, the study supports a connection between greater organizational affluence and greater innovativeness.

6. Staff Professionalism: NIMH's survey of the literature documented a relationship between greater numbers of professional staff and organizational innovativeness. This is one variable which may correlate with organizational size.

7. Organizational Leadership: One of the most important variables identified by the NIMH study was organizational leadership. The study showed that the personality, interests, and training of an organization's leaders can have an enormous impact on the level of innovation in that organization. Even more important is the innovation-fostering role which leaders define for themselves, both within the organization and in relation to other organizations.

8. Organizational Environment: One of the more complex variables incorporated in the NIMH study was organizational environment. The study defines organizational environment as "the way in which an organization perceives its relationship to its larger social context of client, community and government." In general, a successfully innovative organization is receptive to environmental input, but is not totally vulnerable to it. In fact, the degree of innovation is often defined by the degree of autonomy from the environment.

9. Other Characteristics cited by the NIMH study included organizational proximity, i.e., "the physical and social distance between members and subunits of an organization and between sources of innovation and potential adopters"[12] as contributing to innovation. Finally, a history of successful innovation optimizes the chances of success of a current effort.

A more complex study of innovation in organizations was sponsored by the National Science Foundation and carried out in 1973 by the Battelle Laboratories.[13] The Battelle Study conducted a restrospective case study of ten technological innovations in an attempt to define those characteristics and conditions common to successful innovation.

Battelle identified twenty-one social, institutional, and cultural factors, both internal and external to the innovative process, which had a degree of impact on the decisive events in each innovation. They also identified eight characteristics of innovation which had an impact on the innovative process. Figures 2 and 3 are drawn from the proposal to deliver technical assistance to Long Term Care Gerontology Centers submitted to the Administration on Aging by ELM Services, Inc. Figure 2 reviews fifteen of Battelle's twenty-one factors which are especially relevant to centers and relates them to the corresponding characteristics of centers. Figure 3 reviews six

FIGURE 2

INNOVATION AND CENTERS

Key Factors in Prior Innovations	Actualization in Centers
Motivational Factors 1. Recognition of Scientific Opportunity	1. Provides environments for recognition A specified role of Center Director
2. Recognition of Technical Opportunity	2. Provides range of resources for developing opportunity
3. Recognition of Need	3. Focus or concentrate multiple resources on specific topics and problems
Management Decision Factors 4. Management Venture Decision	4. Coalesce resources (personnel, facilities, equipment, monies, organizations) into large scale scientific endeavors
5. Availability of Funding	5. Able to assist in finding and developing funds and in preparation of applications
6. Internal R&D Management	6. Management/organizational/goal setting capabilities. Internal peer review before external review
7. Formal Market Analysis	7. Determines available resources and special expertise. Orients activities in that direction

FIGURE 2

INNOVATION AND CENTERS

Key Factors in Prior Innovations	Actualization in Centers
Management System Characteristics 8. Prior Demonstration of Technical Feasibility	8. Plans and undertakes demonstrations of models, determines utility of further research and applicability of model
9. Technical Entrepreneur - an individual within the performing organization who champions a scientific or technical activity; he is sometimes also called a "product champion"	9. Center Director has "seed" money for new approaches. Acts as an advocate for researchers.
Peer Group Forces 10. Technology Interest Group	10. Investigators interact formally and informally both intra- and extra-murally in idea and findings exchanges
11. In-House Colleagues	11. Foster collaborations and otherwise facilitate cooperation on an interdisciplinary basis
12. External Director of R&D	12. Through normal national peer review mechanisms
13. Competitive Pressures	13. Must show through planning grant & implementation a capability to compete and win research grants and continuation based on success

FIGURE 2

INNOVATIONS AND CENTERS

Key Factors in Prior Innovations	Actualization in Centers
14. Circumstantial Factors Serendipity	14. Foster wide spectrum of activities in many disciplines
15. Technology Confluence	15. Have interdisciplinary staffs representing major potential channels of development

FIGURE 3

COMPARISON OF APPROACHES TO SIX CHARACTERISTICS OF
THE INNOVATIVE PROCESS UNDER CENTER AND TRADITIONAL ORGANIZATION CONCEPT

Characteristics of the Innovative Process	Centers Organization Concept	Traditional Organization Concept
1. Early recognition of the need-recognition that there is a problem to be solved, a need for investment of resources in the solution	Centers embody focused research on topics. Frequently capable of shifting resources to new approaches to answering critical questions relating to topic.	Traditional research not focused on topic, but on discipline/specialty. Investigators pick individual topics, and seek allocations of resources.
2. Independent Investigator - working on his own behalf	Independent investigators with separate project control, separately peer reviewed in most cases.	Same
3. Technical Entrepreneur - "An individual within the performing organization who champions a scientific or technical activity"	Uniquely present in the form of the Center Director whose role is to foster research endeavors on the topic or problem.	Present in some cases in the form of Department Chairman, however, not topic oriented and may be unaware of research implications of investigator work on a topic.
4. Government Financing - government support through grants, contracts and cooperative agreements	Available	Available
5. Informal Transfer of Knowledge-not through formal information exchanges	Heightened between disciplines working on a daily basis in proximity on topics or research questions in common.	Less likely between disciplines and less frequent on common research topics - not daily.

FIGURE 3

COMPARISON OF APPROACHES TO SIX CHARACTERISTICS OF
THE INNOVATIVE PROCESS UNDER CENTER AND TRADITIONAL ORGANIZATION CONCEPT

Characteristics of the Innovative Process	Centers Organization Concept	Traditional Organization Concept
6. Supporting Inventions	Innovative approaches at other centers may be more readily visible. Part of the role of Center Director is to seek out supportive information on researcher topics, usually through peer review or other research requests. This requires the bulk of his/her time.	Innovative approaches at other institutions may be less visible to the individual investigator.

of Battelle's eight characteristics of an innovation which are relevant in centers and contrasts the centers response and the traditional organization response to each. It can easily be seen that several of these factors and characteristics are uniquely congruent with the centers concept and matrix theory. Notably, internal research and development management, technical entrepreneurship, technological interest groups and in-house colleagues are features not normally found in traditional research organizations. Thus, although specific evidence is not available, it appears that the center concept embodies many of the factors and characteristics which increase the likelihood of innovative problem solving and solution dissemination. Many of these features will be discussed in Section III, which deals with the structure and governance of a center.

C. The Theory of Team Development

A third body of theory which contributes to the centers concept is the theory of team development. Team development is important in this context because an implied feature of the matrix structure of a center is the project team. The project team is an interdisciplinary group formed to address a particular task. It is always subject to reformulation in response to changing needs and resources. Therefore, as Dyer points out in his valuable study of team building, "team development is important to build the new program group rapidly and to maintain the person's identity with his or her functional unit."[14]

As with the theory of innovation, there is a high degree of correlation between team theory (which can be traced to the theory of group dynamics) and the centers concept. The classical team theory of Likert and others describes an effective team as one whose members have both leadership and membership skills, which they use interchangeably. The leader of an effective team seeks to establish an atmosphere which is supportive and cooperative; a leader is often able to have a major impact on the team's success. The supportive atmosphere of a team encourages innovation and creativity. Another characteristic of an effective team is the high motivation of members to communicate and the resultant ease of communication flow. In a center, this is particularly true of lateral, or peer communication. A final characteristic of an effective team concerns decision-making:

> In a highly effective group, individual members feel secure in making decisions which seem appropriate to them because the goals and philosophy of operation are clearly understood by each member and provide a solid base to making decisions. This unleashes initiative and pushes decisions down while still maintaining a coordinated and directed effort.[15]

A second and more applied approach to team theory in centers revolves around the principles of interdisciplinary teaching and patient care. Originally used in the area of primary care, the team concept in health care has expanded rapidly and has had multiple effects on professionals and the structures in which they work. Particularly in the field of geriatrics, calls for an increasingly interdisciplinary and team orientation have been often heard.

The origins of the health care team may be found in the growing acceptance over the last fifteen years of the fact that a variety of different health professionals are required to deliver comprehensive and continuous health care.[16]

> . . . Stimulated by government dollars . . . and placed on a sound theoretical basis by collaboration with experts in the field of management, the technology of health team development now exists as one key resource to clinicians and administrators.[17]

One of the most exciting implications of health care team concepts is in the area of professional education. It is becoming clear to educators of medical students, nurses, social workers, health administrators, occupational and physical therapists, and a variety of paraprofessionals that the ability to cooperate to deliver comprehensive care is best inculcated in the student. Thus, interdisciplinary seminars in professional schools are taking the place of separate and discipline-bound learning experiences. Such experiences involve not only training in interdisciplinary team function, but an effective exchange of information among the disciplines concerning their individual perspectives on the area being discussed (i.e., rehabilitation).

The team development theory advocates placing various disciplines in close physical proximity to each other, since physical promimity alone can foster cooperation This alone is a beginning principle of center formulation.

As we will see in other sections of this report, the interdisciplinary team or affinity group concept is at the heart of center theory. It is the interdisciplinary team in a research, education or development mode that brings to a task a blend of talents and insights which provide a better final result to a project, an investigation or a process.

Thus, it can be seen that matrix theory, the theory of innovations, and the theory of team development each contribute to the centers concept. A statement of the characteristics of a center, in terms of administrative structure and governance, is contained in Section III.

III. THE STRUCTURE AND GOVERNANCE OF A CENTER

A center may be defined as an administrative entity which seeks to utilize techniques from a variety of disciplines in doing applied research and thus solving real problems.[18]

The objectives of a center are:

1. To provide close linkage between researchers and practitioners - and -

2. To bring together a team or affinity group of individuals from a variety of disciplines in an interdisciplinary approach to focus on a particular problem area.

A center is often described as having a unique administrative structure, which has important impacts on and implications for the governance (or administrative control) of the center. The following is a survey of some of these unique aspects of a center which are necessary to the success of a center.

As mentioned earlier, a primary structural quality of a center is its interdisciplinarity. As it takes shape, therefore, the center becomes (in organizational terms) a power base within the academic setting which crosses departmental lines and can cause the reallocation of resources (faculty, space, etc.) within the organization. Therefore, in order to be successful, a center needs the support of all departments and key personnel that will play key roles in innovations in a given topic area. This support may be clear from the outset or it may need the stimulation provided by information and individual input.

Another structural mechanism which has proved extremely valuable in this regard is the advisory council. Through representation on an advisory council of key individuals from all relevant departments and the participation of these representatives in a formal advisory process, the center can be assured that it is building a stable foundation.

One indicator of a successful center is the placement of the center within the academic hierarchy: the higher it is placed in this administrative structure, the more likely it is to remain viable (i.e., to survive the initial funding period). At a minimum, the center should have status equal to that of a department, or other line/hierarchial structures from which it must draw resources. The placement of a center at this level is evidence of the organization's commitment to development of the center, and allows the center director to communicate--and compete--with the relevant line department chairmen or deans.

A third crucial factor in center success is leadership. It has been pointed out that the ideal center director is someone with a clear vision of the directions the center should take in accomplishing its objectives. He or she is a person who understands and can foster the synthesis of disciplinary approaches which make up a center. Perhaps most important, the first center director is usually someone already within the organization or one of the relevant departments. Recruiting outside candidates has been found in the past to damage the authority and power position of the job.[20]

Finally, in order to be successful, a center should obtain autonomy and governing power in the following areas:[21]

- Budget: A center should not be dependent upon another administrative entity for funding. It should seek to develop local funding sources, patient-generated revenues, and third party payments in order to establish a nongovernmental funding source and because its costs will be higher than the level of government funds available. A center should also have funds for academic appointments. Finally, a center should have the power to do internal peer review of research proposals for discretionary funding.

- Space: A center should have its own space. This is often difficult to obtain because it represents to the department or medical center the loss of revenue-producing space. Proximity of center investigator/faculty is a key issue.

- Faculty Appointments: A center should have the power to name its own associates, and to employ them at a status comparable to regular faculty. Quality staff are less likely to be attracted to the center if joint appointments are necessary or if a department chairman's permission is required for each appointment. While tenure tracks may not be used, they are a sign of the relative strength of the Center Director.

- Time: The leadership of the center and the university should be prepared to dedicate the many years and the many dollars above government funding of a core component which center development requires. This is an evolutionary process lasing between five and ten years.

Centerness literature -- i.e., literature which marries the three bodies of theory discussed above and seeks to describe the phenomenon of centers development -- is still very scarce. For the most part, the literature of centers is still at the case-study stage. Researchers and practitioners who have been involved in a center have sought to describe their experience with it, but we still lack exhaustive and generalizable treatments of centers development as an organizational phenomenon.

A salient exception is the work of Stanley O. Ikenberry and Renee C. Friedman in Beyond Academic Departments: The Story of Centers and Institutes.[22] Ikenberry and Friedman surveyed 125 centers (in the social, physical and life sciences) in an attempt to describe the origins, the structure and the functions of centers.

The availability of task-oriented government funding for research in a given area is cited as the most forceful external stimulus to center formation. Examples of internal stimuli to center formation are career needs of faculty and institutional development needs as perceived by university administrators. However, they note that

> Some degree of support from all three sectors -- constituent groups, the faculty, and university administrators -- was usually present in the formation of an institute or center.[23]

A complex of three factors were studied as an indicator of center structure: these factors were office location (either in the center or in the department), primary ties of professional staff (to center or department), and expected duration of appointment. When viewed on this basis, the 125 centers tended tc fall into one of three groups.

> Three major organizational models of institutes and centers can be identified: standard, adaptive, and shadow. The three models tended to fall along a single continuum and differ in terms of stability in goals and programs; duration of appointments; strength of identification of professional staff members with the institute; contol over budget; and the manner in which space and facility needs are satisfied.[24]

Finally, the major functional advantage of the center is again described as its interdisciplinary orientation. There is certainly a danger that centers can take on a disciplinary bias, but this danger declines as center autonomy increases. The major function of centers are research, training and public service. However, a center can act in these areas at any one of three levels: performance, administration, or facilitation. Thus, the possible functions of a center constitute a nine cell matrix. In reality, the actual functions of any center are usually limited by fiat or preference to two or three cells of that matrix.

In discussing center control, the centerness literature cites some of the governnance variables discussed earlier, such as academic appointment power, the advisory committee, leadership, the place of the center within the university hierarchy, and the need for organizational and budgetary stability.

Ikenberry and Friedman conclude with a series of six recommendations regarding the university-center relationship. First, they suggest that effort be directed toward making sure that the goals and character of a center are congruent with those of the founding organization. Second, they recommend that

> University policy relating to personnel matters, such as title, promotion, benefits, and prerequisites, should be uniform, regardless of the specific division in which the professional person is employed or the functions he performs.[25]

Third, the authors recommend that the task orientation, flexible goals and structure, and restricted functional mandate of centers be preserved. As a corollary to this, their fourth recommendation concerns the need for policies and procedures for systematic review of center programs and proposals. They recommend a major review at least once every five years.

Fifth, it is recommended that increased attention be given to the integration of the center in organization, communication, physical facilities and governance/mechanism of the academic setting. Finally, the authors recommend that the center be viewed as a viable organizational alternative and be used (in this positive sense) increasingly within the university. The challenge, they conclude, is to minimize the shortcomings of center structure and to apply wisely the strengths of the structure.

The application of such a body of theory to the formation of Long Term Care Gerontology Centers is thus the task before us. The Long Term Care Gerontology Center's mandates and missions are to provide research and evaluation, clinical services, professional training and continuing education, public information, technical assistance and community coordination in the area of long term care. There are distinctions between the methods used by a center and a traditional organization to achieve these missions. Figure 4 uses the example of research. In a center, as has been pointed out previously, the environment is multidisciplinary and research is problem-oriented. A team approach to research is frequently employed, and teams are centrally administered. Facilities and equipment are also centralized. Communication, due to the team structure, is highly developed. A common goal, for example, might be the development of treatment models and the dissemination of those models to each center's respective community.[26]

Figure 5 is a diagnostic aid devised by Dr. Robert Biller, Dean of the University of Southern California's School of Public Administration, to determine when matrix and hierarchical structures are useful and how they operate differently.[27]

Biller suggests that hierarchies are more useful when an "environment" or mission is well known (i.e., you are on BEDROCK). When the environment is SWAMPY and uncertainty of direction prevails, Biller suggests a matrix or center organization structure will be more useful.

FIGURE 4

APPARENT DIFFERENCES IN RESEARCH ORGANIZATION
UNDER CENTER AND TRADITIONAL RESEARCH CONCEPTS

	Center Concept	Traditional Concept
Peer Environment	Mixed disciplines, may be basic and/or clinical with variety of disciplines in search of a solution to common problems	Isolated disciplines, colleagues have same disciplines separate problems are under consideration
Activity/Area of Investigation	Topic stays the same, although specific investigations may vary.	Based on discipline and current topic of interest to investigator, may change topics.
Independence of Investigator	Frequently a team approach while still free to carry out own investigations, comes under internal peer review and must meet it. Some loss of autonomy, more directed efforts.	Higher. Less critical review of need for research in progress against the problem more emphasis on technique, methodology. No internal peer review.
Administration	Done centrally	Done by individual
Facilities and Equipment	Centralized locations, multiple users	May use individually or with other users
Communications	Close contact with both basic and clinical researchers in different disciplines	Contact on an individual basis, primarily with either basic or clinical researchers in same discipline
Information or model Dissemination to Local Community	Usually a mandated part of the center mission. Focus on local community demonstrations	Usually not mandated. Information dissemination usually on a national level

FIGURE 5

DIFFERENCES BETWEEN HIERARCHIES & MATRIX (CENTER)

ORGANIZATIONS AND PROBLEMS

EXAMPLES OF VARIABLES/ISSUES	Modes of Action-Decision Rules	
	"BEDROCK"	"SWAMPY"
Types of Organization	Hierarchy (Trad. concept)	Matrix (Center concept)
1. "Meta" Problem toward which oriented	Maintenance/continuity	Adaptation/change
2. Presumed nature of organization	Permanent	Temporary
3. Assumption	Organizations persist (as persons come & go) as they respond to evolving problems	Persons persist (as organizations come & go) as they respond to evolving problems
4. Key value amplied	Responsibility	Responsiveness
5. Organization design/redesign strategy	Negotiate turf/domain for future exigencies	Negotiate problem definition for present
6. Turf/Domain negotiation governed by	Constitutions	Licenses
7. Unit of organizational construction	Abstract (Role)	Concrete (Person)
8. Presume role/person relationship	Role ⟶ Person	Person ⟶ Role
9. Redundancy of information	Minimize (for cost control)	Maximize (for error correction)
10. Typical information strategy	Aggregate-Abstract from primary data	Disaggregate-Retain primary data
11. Major presumed risk	Inefficiency	Catastrophic error
12. Major rationality assumption	Benefit-Cost	Disaster control
13. Key intra-organization question	Consistency/Equity	Issue specific/Efficacy
14. Key resource control strategy	Fixed budgets, incrementally changed	Licensed budgets non-incrementally changed
15. Motivation	Bound to money & status (i.e., a common coin)	Multiple options
16. Operational processes, e.g., personnel management systems	Functional	Project

FIGURE 5 (continued)

EXAMPLES OF VARIABLES/ISSUES	Modes of Action-Decision Rules	
	"BEDROCK"	"SWAMPY"
Types of Organization	Hierarchy (Trad. concept)	Matrix (Center concept)
17. Preferred managerial strategy	Exception	Situational Specificity
18. Preferred means of providing flexibility	Contingency planning	Insurance
19. Legitimacy timing (the timing of commitment)	Early/continuous	Late/episodic
20. Preferred accountability assumptions	Simple and pre-set	Complex and negotiate
21. Assumptions about problems faced	Continuous/homogenous	Discontinuous/heterogenous
22. Role of manager in staffing	Concentrate on entry point	Concentrate on exit point
23. Problem recognition & response routines prefer to be	Slow/expensive	Quick/cheap
24. Make termination	Hard to achieve	Hard to avoid
25. Goals/objectives/criteria of "goodness" assumptions	Knowledge trustworthy	Knowledge not trustworthy
26. Meaning of conflict	Problem to be "solved"	Resource to be "elicited"
27. Organizational stance in regard to conflict	Suppression	Nurturance
28. Types of problem solving teams	One group figures out how and another does it	Combined design and implement it; thus, get the people who are going to implement
29. Planning preference	Comprehensive	Incremental
30. Planning horizons	Long	Short
31. Preferred timing sequence	Plan → Act → Evaluate	Evaluate → Act → Plan
32. Change strategy	Institutionalize reforms	Institutionalize change procedures
33. Change strategy	Complete design negotiation before implementation started	Complete implementation before design negotiation completed
34. Criteria of goodness & evaluation strategy	"Correctness"-Standard Performance comparison	"Correctability"-Preset performance analysis

Centers may face several major problems within the criteria for success suggested above. These are:

- Lack of center authority for space allocation, fiscal authority and personnel management
- Lack of dynamic center leadership
- Lack of planning structure for a center
- Lack of institutional commitment and even resistance to center formation
- Lack of community commitment and support
- Lack of funds and too-short planning period.[28]

At the same time, however, centers have several strengths on which they may draw:

- The degree of involvement of an academic/health science school and medical community in center planning
- The amount of gerontological expertise available in the academic setting in a variety of disciplines
- The amount of specialized planning expertise and technical assistance available to institutional planners.

There have been examples of centers in the past which have used these principles of structure and governance in an effort to develop centers of excellence in various fields of research. The final section of this report will survey five types of health centers in an attempt to discover the crucial variables in their success or failure.

A. Regional Medical Programs

The Regional Medical Programs were created by the Congress in 1965. Legislation was drafted and enacted out of a desire to combat the three major diseases in the United States: heart disease, cancer and stroke. More immediately, it was a response to the 1964 report of the President's Commission on Heart Disease, Cancer and Stroke (The DeBakey Commission). The Commission found that

- Across the country, there were inadequate mechanisms for transfer of new technology from researchers to practitioners
- There was less than adequate support available for the basic research needed to combat these diseases.
- Few medical specialists were being trained to lead the effort to combat these diseases.[29]

Therefore, they recommended a national network of centers be established in universities across the country that would be charged with carrying out research, training, and some patient care. Second, they recommended that a broad program of grant support be established to support research and training efforts within these centers. Finally, they recommended that a series of developmental grants be established, in order to stimulate the creation of "centers of excellence" in medical education and research.[30]

The legislation which originally addressed the conclusions of the DeBakey Commission included many of its recommendations. In fact, the Regional Medical Program may be viewed as the first Federal effort to create organizations and structures within the health care system.[31] However, in the process of enactment, the legislation was greatly diluted. In an apparent effort in insure the passage of Medicare legislation, the Johnson administration accepted a final version of the bill which relied on local initiative to promote "regional cooperative arrangements" among existing institutions.[32]

In the ten year period between enactment and the final inclusion of RMP activities in the National Health Planning and Resources Development Act on 1974, responsibility for the RMP program was transferred three times within the Department of Health, Education and Welfare. Initially placed within the National Institutes of Health, the program was transferred in 1968 to the newly created Health Services and Mental Health Administration. Finally, in 1974, responsibility for RMP's was transferred to the new umbrella agency, the Health Resources Administration.[33] Each of these transfers meant the introduction of significant changes in philosophy, in style of Federal monitoring, in statements of goals and objectives disseminated from Washington, and in levels of funding. The dislocations and other factors led to a series of problems for RMP's, a review of which may be instructive.

- Town-Gown Conflicts and Cooperation

  Even before RMP legislation was enacted, it became apparent that opposition to it represented, at least in part, the resistance of community physicians to the "dominance" of university medical centers and university-based physicians.[34] Resistance to cooperation increased as credibility declined under the weight of frequent changed in direction.[35]

  Medical schools and universities, for their part, were reluctant to "invest in the community", believing that such investment would ultimately mean the dilution of their own resources. Thus, university and community sectors remained dichotomized and a neutral coordinative body was never formed at most sites.[36]

- Federal Direction and Program Unity

  Another problem was the lack of, or rapid changes in, statements of goals, objectives and priorities at both national and local levels. In retrospect, it becomes apparent that two major elements of policy are required for systems change. First, there

must be "an explicit and consistent statement of what is to be accomplished". A second requirement is the "development of an overall plan of approach and a mechanism for bringing about change". This plan should include an assessment of the situation in the region, objectives for planned activities, and specific strategies through which objectives may be realized.[37]

- Impact Time

  It has also been pointed out that the integration of planning and services implied by a center requires a significant amount of time. Time is required "to overcome natural resistance to changing concepts of delivery of patient care" or to filling gaps in the spectrum of available services. The impact time depends to a large extent on the degree to which the center climate has been prepared; in general, it is thought to take as much as a decade.

  This consideration highlights the necessity to "institutionalize" a project and assure its survival. In the Regional Medical Programs, this was achieved through the use of "seed money", a time-limited funding policy, and the coalition of involved local groups with a view to funding.[38]

- Planning, Monitoring and Evaluation

  Finally, the Regional Medical Program found that its successful programs incorporated rigorous planning, monitoring, and evaluation mechanisms. These mechanisms "allow experience to feed back into the overall planning and decision making process but also...provide control over funded project direction and...ensure continued accomplishment of stated objectives."[39] The three types of supporting activities found most necessary for planning, monitoring, and evaluation were administrative (i.e., personnel and procedures) systems; information systems, either manual or automated; and evaluation systems, usually in the form of guidelines or handbooks.

Thus, it appears from the above that a discrete organization -- which is independent, incorporates representatives of both the university and the community, has stated goals, activities and strategies for action, and mechanisms for planning, monitoring, evaluation, and continued viability over a period of years -- has the best chance for organizational survival.

B. Specialized Centers of Research (SCOR's)

Specialized Centers of Research are supported by the National Heart and Lung Institute. They were created in 1970 in response to a new Congressional emphasis on disease-related goals in research. Somewhat later, in 1972, the National Heart, Blood Vessel, Lung and Blood Act called for a "national attack upon heart, blood vessel, lung and blood diseases". SCOR's thus became, increasingly, a funding mechanism for disease-oriented research in the areas of arteriosclerosis, thrombosis, pulmonary disease and hypertension.

Under this mechanism, SCOR grantees in universities were expected to

- attract researchers from the basic disciplines to more applied problems of specific diseases
- organize high quality collaboration on disease-related research by basic and clinical researchers, and among centers with complementary interests
- be responsive to the needs and priorities in disease-related research identified by the National Heart and Lung Institute.

Since 1970, several areas of research previously neglected have been addressed by the SCOR's, among them fibriotic and immunologic lung diseases, pulmonary vascular diseases, cystic fibrosis, bronchiolitis, and neonatal respiratory distress syndrome.

The National Heart and Lung Institute sees the SCOR grant as an important and equal alternative to regular research grants and program project grants, and feels that a great deal of research has been accomplished through this type of grant that would not otherwise have been accomplished. They acknowledge the Institute's responsibility to direct SCOR activities by prioritizing the areas in which research should take place.[40]

An ancillary grant - called a SCOR Coordination Grant - is used by NHLI specifically to foster coordination among SCOR's. Under this provision, there are meetings of SCOR directors, workshops for SCOR scientists and travel between SCOR's working on similar problems.

In 1975, the National Heart and Lung Institute announced its third competition for SCOR grants. The requirements of this third round reflected problems and criticisms that had been experienced in the first two rounds.

- Programmatic Focus

  SCOR's have frequently been criticized because they constituted a broad, unqualified, and therefore diffuse, form of support.

As a result, 1975 grants required a "common, definitively structured theme or programmatic area of research to which each project relates or contributes."[41] This move, it was felt, would encourage better cooperation among scientists in a given area.

- Discreteness of the SCOR

  In 1975 the National Heart and Lung Institute decided to exclude from SCOR funding any component project of a current program which did not receive the majority of its support from a SCOR. This step was taken because such projects had proved to have little commitment to SCOR goals and to have made little contribution to the overall SCOR effort.[42]

- The Critical Mass Concept

  Prospective applicants for SCOR grants were offered consultation with National Heart and Lung Institute staff, and advice was offered concerning the advisability of an application. A major consideration in staff decisions in this regard was the existence of a critical mass of resources for center information. A critical mass is defined as that minimum quantity and quality of resources in the area of personnel expertise, physical plant and organization which would lead to success in an effort to organize a SCOR. It is believed that the application of this critical mass concept resulted in a lower failure rate overall. Twenty-five of 33 successful applicants had received advice about "the scope and relevance of their proposed programs, budgetary matters, types of scientific expertise that would be involved, and about how the program would be administered and quality control assured."[43]

Although they do not address explicitly the areas of training and clinical therapeutics, the Specialized Centers of Research of the National Heart and Lung Institute are excellent examples of university-based centers which were called upon to develop collaborative applied research and who built such an effort de novo.

C. The Comprehensive Cancer Center

In the mid-1960's, the National Cancer Institute initiated a program to foster the development of "centers of excellence" in cancer. The reasons for the development of centers were diverse. Essentially, the premise of the original concept was that a concentration of basic and applied researchers would encourage research innovation by the pooling of different knowledge bases (specialties) to attack a problem on different fronts. By literally placing specialists in close proximity to each other, it was hoped that the existing time-lag in exchange of information or technology transfer from one discipline to another would be reduced. In view of the National Cancer Institute, the centers would also train an effective cadre of cancer specialists and work to upgrade cancer care in their respective communities.[44]

The initial experiment with this approach was conducted at the NIH Clinical Center. Specific areas were set aside for both basic and clinical cancer researchers. The experiment, in the opinion of NIH executives, was successful. J. Palmer Saunder, Ph.D., the former Director of the Division of Cancer Research, Resources, and Centers stated in an unpublished paper on the "Genesis, Development, and Implementation of the National Cancer Institute Exploratory (Planning) Grant Program" that:

> The achieved objective provided close interlinkage between scientists working on laboratory problems and clinical scientists working with the day-to-day problems of sick patients. . . The benefits accrued from this arrangement were many, but two principle ones were immediately apparent. Firstly, because basic scientists worked so closely with the clinical scientists, there was an excellent interchange of information about the latest scientific findings. . .basic scientists, being so close to the clinical situation, became increasingly aware of some of the problems engendered in the treatment of patients. New challenges arose which stimulated the basic laboratory scientists to return to their laboratories to search for solutions to these problems. In addition, the latest scientific techniques became quickly available in the management of clinical situations so that no longer did the clinician have to rely solely on routine hospital laboratories but had at their fingertips all the sophisticated instrumentation that modern science could provide, thus generating new data that in many cases helped solve vexing problems of patient management. Laboratory scientists no longer worked in isolation but had a day-to-day awareness of the end result of their research efforts.[45]

The National Cancer Act of 1971 served to accelerate and further define the development of cancer centers. Several distinct types of cancer centers developed.[46]

1. The University Cancer Center is based in a university hospital and medical school and attempts to unify cancer research and treatment efforts dispersed in various departments. A University Center usually receives core support, in order to stimulate cancer-related activities and maximize the flexibility of staff.

2. The Categorical Cancer Institute is located in an institution (usually an independent hospital) whose major effort and first priority are cancer research and treatment. Such an institute may be affiliated with a university.

3. The Community Cancer Center is found in communities with a major treatment effort in cancer but without a medical school. The community cancer center is usually affiliated with the nearest university or categorical cancer center, is part of a community hospital and does not receive federal support.

The mandates of the cancer centers program were:

- Manpower Developement - It was believed that multiple centers in university settings would draw academic attention to the need for education for specialists in cancer treatment.

- Clinical Applications - In this and other areas, centers would serve as model builders, developing new methods of multidisciplinary cancer care and applying those models to patients throughout the country.

- Demonstration and Outreach - Another major focus was the development of models of multidisciplinary interaction in therapy for demonstration to physicians and other health care professionals in community settings.

Objectives for the cancer centers program exist at two levels. That it, a center may be characterized as a specialized center or a comprehensive center. During their developmental phase, both types of centers were largely concerned with issues of structure and governance. They sought, among other things, to:

- Designate a qualified director who could shepherd the center through its initial definitional challenges and into an operational phase.

- Define an organizational plan which would coordinate cancer-related activities within their institution.

- Obtain the administrative autonomy to address issues of policy, personnel and physical plant.

- Designate a Scientific Advisory Committee, composed a internal and external representatives, to provide program direction and review.

The Comprehensive Cancer Center met the mandates stated above, and sought above all to develop its multidisciplinary capability. Further, the Comprehensive Center:

- Has the degree of autonomy and the developed administrative structure in the areas of program planning, implementation and monitoring, personnel and physical plant allocation, and fiscal control necessary to achieve excellence in research, training and service delivery.

- Provides leadership in developing community programs.

- Has a strong research program which is linked with training and service delivery functions.

- Has sufficient beds for delivery of clinical services and the carrying on of research.

- Maintains a statistical evaluation base for evaluation purposes.

- Seeks to integrate its activities with other centers around the country.[48]

In seeking to encourage the development of cancer centers, the leadership of the National Cancer Institute chose a course similar to that suggested by the Long Term Care Gerontology Center program. Over a period of years, they awarded 125 exploratory or planning grants. From this number, 21 Comprehensive Cancer Centers and some 45 Specialized Centers have developed, primarily at major universities throughout the U.S. It should be noted that the differences between "Comprehensive" centers and "Specialized" centers are in the types of programs the centers undertake, not the number or type of diseases they treat. Specifically, "Comprehensive Centers" have peer reviewed and approved projects in the following areas:

- Basic Research
- Clinical Research and Treatment
- Cancer Education
- Demonstration and Outreach

At least one of their funded research awards must be an interdisciplinary research grant, known as a Program Project. Thus, these Centers are comprehensive in that they address all of the key elements of a centers program. A specialized center may have three of the four elements, or all four developed to a less significant extent.

The Comprehensive Cancer Center movement has faced several challenges in development which may be relevant to other systems of centers. Key issues which needed to be addressed in order to assure the success of the centers were: the nature of the planning effort; defining function and scope within the university setting; and the actualization of matrix theory.

- The Nature of the Planning Effort

  The National Cancer Institute chose the exploratory studies (or planning) grants mechanism to assure an adequate planning effort. NCI perceived an imperative need for planning, first, because administrative structures and interdisciplinary research, training and treatment teams would have to be constituted. A second impetus to planning was the need to initiate specialized facilities and innovative procedures and to recruit scarce manpower.[49]

  In the view of the NCI, a planning effort should be formulated in the context of broad goals; in the case of the cancer centers, those goals were scientific teamwork, cooperation with other health organizations, training of physicians, allied health personnel and the public, the execution of programs in detection, diagnosis, demonstration and rehabilitation, and development of a national data gathering and exchange system.

Thus, the NCI posits that planning efforts should be aimed at

- obtaining data about existing health resources in the community and the institution
- developing linkages with these organizations
- selecting methods of formalized cooperation
- creating feasible administrative and fiscal structures.[50]

Planning efforts in cancer centers have produced several beneficial side effects in the community or institution. The NCI cites increased professional cooperation and education, increased public visibility of cancer treatment, and initiation of locally funded programs and facilities as examples of this. In addition, the needs of the target group (cancer patients) and the nature of their diseases often received increased attention. Finally, alternative methods of treatment, training, and community involvement are sometimes highlighted in a planning effort.

The NCI mentions the special planning situation of a center which will require the cooperation of a number of health care organizations:

> In such cases, even the background information and "legwork" required to establish the Center program are enormous, in addition to scientific exploration and decision making efforts. In some cases, the services of experienced professional consultant firms under contract to the planning institutions have been useful in acquiring information on scientific interests, patient referral patterns, health resources and facilities, as well as in analysis and coordination of the information into a set of feasible alternatives. . .for consideration by the Principal Investigators and other officials of the institutions concerned with the total planning. Such consultants have also been able, in certain situations requiring commitments on the part of several previously unrelated institutions and/or departments within institutions, to present impartial written reports on needs and alternative modes of cooperation which facilitate decision making.[51]

Saunders cautions that center planning must "involve the whole question of feasibility and of acceptance of the concept by the community. He believes that the planning efforts which were most successful highlighted two principles:

1) It is essential to have planning expertise in initiating the planning effort. This means that it is essential to have as a consultant an organization that is knowledgeable and experienced in the matter of cancer center planning. 2) It is essential that all individuals in the medical school and medical community associated in any way with cancer be actively involved in the planning effort. As a result of the application of these two principles the NCI Planning Program has become highly visible and successful.[52]

Yarbro and Newell, in contrast, focus on the one product of planning which they feel is most crucial: the choice of leader. They cite two ways in which this effort can go astray:

> In the first instance, a strong leader is appointed director and operates from the base of a single traditional department. In such situations there is a tendency for the aspect of the program in which the director is expert to develop very well and for the program to expand into closely related areas using the appointment prerogative of the home department. Where feasible, and to a lesser extent, relationships develop with investigators in other departments. Nonetheless, as the program grows in size and scope, the asymmetry produced by the mechanism of growth is detrimental to the total cancer center effort and in some cases to the relationships of the base department. Administrative problems related to appointment of individuals in disciplines of primary training divergent from the discipline of the center director, as well as a sense of rivalry in other departments, is often destructive to the efforts of the total cancer program. However, many specialized cancer centers have functioned very well with such an administrative structure, and it is only when a more comprehensive program is attempted that difficulty is encountered.
>
> A second variation on this approach occurs when the director is appointed less for his powers of leadership than for his characteristics as a neutral, non-threatening figure. In this second pattern such an individual is often required to report to a steering committee of the cancer center composed of department chairmen who are authorized to make all of the significant decisions with regard to the operation of the center. The problems encountered in the average medical school executive committee, where department chairmen vie for control of various elements of the school in terms of such assets as beds, patients, research laboratories, and budget. Such competition occurs in the steering committee of the cancer center with the result that the center activities are too often fragmented between competing administrative units and lose cohesiveness and direction.[53]

- The Nature of the Setting: The Academic-Community Relationship

  Early on, the National Cancer Institute was faced with a choice of emphasizing free-standing or university-based centers. This was the crux of the problem. Freestanding, private, interdisciplinary cancer research institutes pre-dated the Congressional mandate by many years. However, the cost of building and sustaining free-standing centers was incalculably high, and physicians and scientists would be wary of their stability to the point that their credibility as "centers of excellence" would be questioned because of their lack of scientific talent.

  The university-based centers posed other problems, some of which we will address in detail below. Essentially, it may be said that an interdisciplinary team approach violates the traditional structure of universities and medical schools and, thus, meets significant resistance. However, universities offered stability, appointments, and contained the specialized research and application talent which must be the core of a center's raison d'etre.

  Once a university-based approach has been decided upon, centers face several problems simply by virtue of their setting. Often, these problems become concentrated in attempts to disseminate innovative and integrated models of care to the community, since these attempts represent the major university-community interaction. The problem of model dissemination has, in turn, four probable roots:

  - Lack of a receptive audience in the community for integrated models.
  - Lack of understanding in the community about the content of integrated models.
  - Credibility problems in university/community interactions.
  - Medical system obstacles.

- Credibility in University/Community Interactions

  Credibility problems in university-community interactions are largely symptomatic of a "town-gown" dicotomy which affects the ways in which community service providers perceive attempts at model dissemination from university-based centers. This is a major and continuing problem which will markedly affect the ability of Long Term Care Gerontology Centers to fulfill their mission.

  Although rarely committed to print, there is clear evidence that many university based centers hesitate to develop community programs. For example, in 1974, the NCI developed a grant vehicle

to support comprehensive cancer center/community programs. Yet, only 10 of the 21 existing centers have successfully received funding under this title. Conversely, community specialists, as their numbers increase and as they develop their own programs, tend to look on centers as competition. Thus, efforts must be expended early on to make the choice of the university-base a help rather than a hindrance, especially in community relations.

- The Community Audience for Integrated Models

At the heart of difficulties in model diffusion to communities is the frequent scarcity of individuals who are receptive to the concepts suggested. For example, initial cancer center attempts to develop interdisciplinary and multidisciplinary teams in community settings fell on deaf ears.

The reasons for this breakdown in model transmission might best be found in the literature of communications theory. Communication theory notes that individuals use a screen called "selective perception" to cut down on the number of communications which are thrust at us from a variety of sources. Only when we are in the market for a new concept are we likely to allow new information on that topic through our information screen.[54]

Integrated models of comprehensiveness and continuity of services will in some cases challenge the format, the context, the entire environment of service delivery. Indeed, the experience of cancer centers in conveying new models has only gained strength in the last three years. This phenomena closely parallels the growing number of trained service providers (cancer specialists) now practicing in community settings. In other words, until someone with a special interest in the topic area was a part of the adoption unit, other less interested community members did not attempt to adopt the proposed models.

While the centers may thus be said to have had some role in the recent organization of community centers through diffusion of information, their major role in the process may have been as the initial educators of the service providers who now lead many local programs.

- The Content of Integrated Models of Service Delivery

Kloughlan and Bohlen[55] point out that community acceptance of innovative models developed by cancer centers is dependent on their

  - complexity
  - divisibility (i.e., can it be tried)
  - visibility (i.e., can examples be seen)

- compatibility with existing values and past experiences

- relative advantage (i.e., superiority over values that preceded it)

- accessibility/availability (i.e., the degree to which an adoption unit has an opportunity to use the innovative.

Recent cases in-point were the attempts to disseminate diagnosis -specific patient care guidelines, originally propagated in cancer centers, into communities, and the attempt to encourage the formation of multidisciplinary teams in cancer care.

Recently, ELM Services, Inc. conducted over 500 1 hour interviews with physicians, nurses, social workers, administrators, and hospital trustees in 10 U.S. communities in the process of assisting those communities develop a demonstration model for multidisciplinary cancer treatment and interdisciplinary team service to patients in their clinical nursing, rehabilitation, supportive care, continuing care, and terminal care needs.

Several problems became apparent throughout the interviews:

- Although multiple staff-wide presentations and several staff-wide mailings had discussed the program, and specifically defined it as voluntary, most providers feared that participation in a demonstration would eventually cause enforcement of mandatory approaches to practice.

- Another inhibition to change, mentioned in the literature discussed above, is the perception of service providers that the current system is superior.

- Non-physician team members are still perceived by many (but not all) physicians as less than equal team members. However, this situation is clearly changing.

It is this type of apprehension, lack of trust and misperception that can only be dealt with by an advocate, a sponsor of the innovation within the local setting. Repeated clarifications of intent are necessary before proposed models are understood and misinterpretations of their content diminished. Without this clarification most service providers will consider new concepts threatening, even when they are not.

Solutions to these problems have gradually emerged. Maurer et al discussed the "participatory planning process" model in a recent article in Cancer Clinical Trials. This article reviews four control demonstration projects which focus on the establishment of guidelines for four types of cancer and notes that the success was best achieved by "(1) a distinct planning phase, (2) equal participation of the target population in both planning and implementation, (3) educational programs which are not limited to physicians but include other health providers, and (4) development of an increased range of services." [56]

- Other Medical System Elements

  Changes in patterns of service delivery are often affected by mechanisms outside the mainstream of centers or communities. Inappropriate referral patterns, patient denial and apprehension, and institutional and professional jealousies are obstacles that may be addressed by some of the participatory processes discussed above. Incomplete reimbursement procedures, inadequate facilities and public apathy and distrust are larger, more difficult problems which frequently cannot be managed at the local level.

- The Actualization of Matrix Theory in Centers

  One of the major challenges of the formation of centers was the application and actualization of the matrix theory of organization (discussed above) to the host universities. The centers concept, it will be remembered, alters the classic university/medical school structure by

  - Crossing classic department lines
  - Crossing traditional specialty lines
  - Combining basic and applied researchers
  - Focusing on specific research topics (i.e., gerontology, cancer, mental health, etc.) rather than disciplines (i.e., surgery, ob-gyn, social work, pathology).
  - Focusing on transfer of technology or models to community settings.

  Yarbro and Newell have summarized the origin and the challenge of multidisciplinary research and practice:

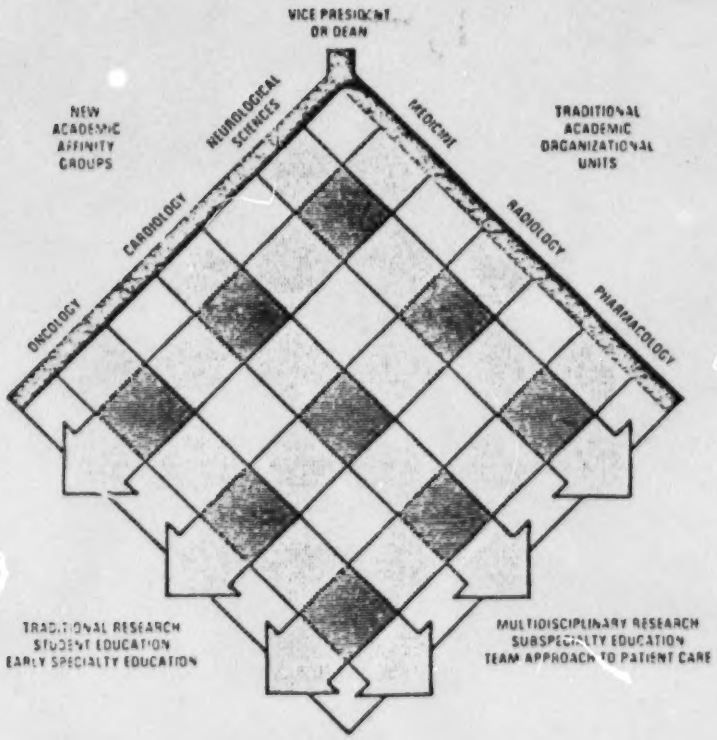
  > In short, commonality of interests and goals do not correlate nearly so well today with departmental assignments as was true in the past. In large part, it is the development of new affinity relationships that has been responsible for the increased emphasis on multidisciplinary treatment teams that cross departmental lines in pursuit of common goals.
  >
  > The result of this trend has been to establish new affinity groups composed of scholars who have a common body of knowledge but use multiple techniques for the application of that knowledge. In their day-to-day research, education, and service functions, members of such affinity groups have far more in common with their new group than with their traditional discipline; yet, administratively, our medical institutions remain oriented as though this were not the case. Thus, important administrative functions, such as appointment, assignment of space, payment of salary, and

allocation of budget, are conducted by an administrative unit which is different from the affinity group in which a scholar works and studies daily, and this produces stress and conflict within the normal functions of an academic institution.[57]

Yarbro and Newell suggest that the solution to the problem may be an adaptation of a suggestion by Galbraith[58] for a similar set of difficulties faced by industry. Their matrix approach, shown in Figure 6, would have several specific advantages:

FIGURE 6

THE MATRIX CONCEPT IN AN ACADEMIC ENVIRONMENT
(Yarbro and Newell, 1976)



> First, the administrative interrelationship of scholars with a common body of knowledge is established in terms of appointments, budgets, and space; second, the administrative relationship among scholars with a common traditional disciplinary or technical approach in applying knowledge is maintained; third, an executive group of leaders of the administrative units which are not merely theoretically equal but truly equivalent in staff, budget, and the like is created as an advisory council for policy decisions; and fourth, it may be possible to simplify the existing departmental structure of the medical schools by relegating some existing departments to intersect points on the matrix, particularly those departments that are composed of only two or three individuals in many schools at the present time.[59]

Thus, the challenges that centers have faced in applying a matrix theory of organization have centered around those principles of structure and governance described in Section III. Yarbro and Newell conclude that several elements are crucial to the function of a cancer center:

> (a) The center director must be a major figure in the academic institution, reporting to the dean or vice president for medical affairs and having an equal voice in advisory councils or committees with other major programmatic leaders, such as the chairmen of the major departments. (b) The center director must have the authority to make academic appointments in oncology; although usually such appointments should be of individuals who also have an appointment in a traditional department, this need not be the case in every instance. (c) The center must have under its authority appropriate space, including laboratories, beds, and clinics, to carry out the programmatic effort. (d) The center must have a budget comparable with other administrative units in the medical school, including salary both with and without tenure, and other budgetary items characteristic of the institution. (e) A discrete physical facility for the cancer center is highly desirable both from the standpoint of public and professional recognition and identification and from the standpoint of facilitating multidisciplinary interaction in research, treatment, and education.[60]

Several related aspects of matrix structure which have proved problematic in the past are:

- Adequate Staff Time - In many cases, a project requires only a small portion of an individual's time and promises proportional rewards. In these cases, investigators are are reluctant to participate in planning projects and frequently do not interact with other team members on a regular basis. Likewise, a Principal Investigator

must have time outside of research and teaching obligations to devote to center planning and development.

- Proximity - During the initial development of a center there is rarely a "common ground" that allows informal and frequent communication.

- Team Building - new organizations frequently encounter facilities in constituting teams, developing a mechanism that facilitates team functioning and maximization of the conditions which encourage teams to work together effectively.

- Mechanisms to Attract Investigators - Appointment, budget, seed funding, space, and core equipment are all incentives to attract important investigators to projects. These prerogatives are defined during the planning period.

While not all of these elements may be central to the success of Long Term Care Gerontology Centers, many may have a key role in their eventual stability and long term growth.

The last two precedents for centers cited here, Neighborhood Health Centers and Community Mental Health Centers, are not true centers if viewed in the light of the definition we have developed above. First, they are not matrix organizations. Even though some of the seminal work in health care teams took place in these centers, those teams still function in an often strict hierarchy. Second, there are significant differences between the primary missions of true centers (i.e. research), and of these centers (i.e. treatment). Although it is true that any center strives for a balanced mix of research, training and service provision activities, matrix centers often emphasize research as the basis for training and service provision. These centers, on the contrary, emphasize service provision to the near total exclusion of the other two missions. Finally, Neighborhood Health Centers and Community Mental Health Centers are almost exclusively community-based. Few have university connections, much else coordinated and cooperative programs.

Nevertheless, Neighborhood Health Centers and Community Mental Health Centers exhibit some of the same problems in structure and governance as true centers. For this reason, and with these caveats, we advance them for consideration.

D. The Neighborhood Health Center

The Neighborhood Health Center system was created by the 1966 Amendments to The Equal Opportunity Act. In 1969, amendments to the Public Health Service Act transferred responsibility for the NHC's to Regional Offices of the Public Health Service. The mandate of the Neighborhood Health Centers was to provide basic health services to the chronically disadvantaged. Among other specifications, the Centers were to:

- Provide a "one-door facility" which was easily accessible and could render virtually all services required.

- Provide for the full integration of existing sources of services and funds.

- Coordinate with other community services and resources.

- Develop sponsorship and funding of a wide variety of public and private organizations.

In the early stages of the implementation process, the centers were seen as ideal settings for the implementation and evaluation of innovative models of care, in particular, team care. As time progressed, however, major problems appeared. These problems have been described most cogently in a study produced by the National Association of Neighborhood Health Centers.[61] The problems described touch on virtually every aspect of center development, center structure, and center governance; five large categories of problems are relevant here.

- Input from funding source.

  Input from the funding source was lacking in two respects. First, planning grants were unavailable. As a result, planning phases were eliminated or shortened and project organization suffered. Secondly, the Office of Economic Opportunity was unable to provide comprehensive guidelines outlining what a center should be. This gave the responsible officials an unusual--and some believe too broad--degree of latitude in funding decisions. The combined lack of the two forms of input left project personnel floundering, unsure of how to implement without planning and unsure of what to implement without national guidelines from OEO.[62]

- Definition of the University-Center relationship.

  Relying on the belief that the nature of the relationship between the delegate agency (usually a medical school) and the center would self-define as implementation progressed, centers often failed to explicitly define that relationship at the outset. This eventually resulted in unnecessary strains in their interaction. University administrative mechanisms imposed on the center--in areas such as purchasing and personnel selection--proved too rigid. In this atmosphere, the academic-community split became accentuated. In extreme cases, universities withdrew from center participation, turning over control of the center to often inexperienced consumer corporations.

These difficulties highlighted the importance of the right choice in center leadership: the innovative nature of the grants "made it absolutely essential that the director or directors be individuals that carried enough influence in the parent body to be able to guarantee the continuity of the project."[63]

In many centers, prolonged conflict and administrative separation resulted. Control of the center was turned over to community boards, and continuity and accountability began to become problematic. The situation has been summarized this way:

> The interests of the medical schools with regard to Neighborhood Health Centers have now shifted somewhat, leaving the health center movement without an early ally and with a new competitor. The schools quickly discovered the hidden pitfalls of involvement in the management of neighborhood centers. The experience of becoming enmeshed in bitter controversies with community groups over governance of the centers has led a number of schools to phase out of these operations. In addition, hostile reaction within medical schools to the expanding role of community medicine units has weakened the position of these departments in medical school power relations.[64]

- Definition of the role of the advisory board.

Conflict was also engendered by the lack of an initial definition of the role of the advisory board in center governance. Substantively, advisory boards defined their interests somewhat differently than center directors could have wished; rather than concerning themselves with bylaws and other external evidence of governance, advisory boards often demanded input into hiring and fiscal allocation decisions. Simultaneously, advisory boards struggled to define and satisfy their desire for policy-making rather than purely advisory power.[65]

Center directors were often less than successful in generating an atmosphere of mutual communication and trust in their relations with advisory boards. Here again, the weight of the center director and his leadership style had a major impact.

- Research in the community.

It has been pointed out that any center which attempts to do research in the community--i.e., redefines the community as its laboratory--may encounter problems in the response of the community to this definition.

This research definition of a community reflects a special demand for social accountability and a research interest in the social basis of health and illness. Despite its promise of rationalization (of expenditures) the research view of community may have limitations. It may arouse community fears of manipulation similar to recently discarded ones of "being a guinea pig" in public hospitals.[66]

- Federal and third-party reimbursement.

As Neighborhood Health Centers matured, they began the effort to meet the fourth mandate cited earlier, that is, to seek alternate sources of funding, both public and private. After 1973, there were concerted moves to replace federal project grant support with Medicare, Medicaid, and other third party reimbursement funds. However, recovering reimbursement from Medicare and Medicaid presented four complex and sometimes insurmountable problems.[67] First, it was necessary to achieve provider status. Second, services needed to be managed in a specific way in order to obtain the maximum rate of reimbursement. Third, there was the thorny question of determining patient eligibility. Finally, Medicare and Medicaid payment highlighted the problem of how to pay for the scope of services which exceeded Medicare and Medicaid guidelines.

Neighborhood health centers had multiple difficulties in clarity of mandate, in definition of basic governance and structure mechanisms in university-community interactions, and in the realization of self-sufficiency. In many quarters, the future of the Neighborhood Health Centers movement was, in large part, doomed at the outset by a lack of attention to these basic survival mechanisms.

E. Community Mental Health Centers

The nationwide system of community mental health centers was created by the Community Mental Health Centers Act of 1963. This legislation was drafted largely in response to the 1961 report of a cabinet-level Joint Commission on Mental Illness and Mental Health, which concluded that there was a nationwide inadequacy of appropriate service programs for the mentally ill and a lack of research and training programs for the professionals who treated them. A more immediate impetus was the presidential message of February 1963, in which President Kennedy called for broad, innovative, and vigorous action to meet the needs of the mentally ill and mentally retarded.

The Community Mental Health Centers Act empowered the National Institute of Mental Health and the Division of Hospital and Medical Facilities of the Department of Health, Education, and Welfare to fund a variety of organizations for the construction and staffing of cooperative community mental health centers.[68]

The mission of the Community Mental Health Centers legislation has been expressed in several divergent ways. Naierman states that the purpose of the program was "to provide assistance to communities for the development of alternatives to state and county mental hospitals for the prevention and treatment of mental illness."[69] Ozarin, however, maintains that the basic principle was "to make available a comprehensive range of accessible

and acceptable mental health services to a defined population with continuity of care and with preventive measure wherever possible."[70] It is that leap of faith which equates Ozarin's definition with Naierman's, or sees Naierman's as the successful result of Ozarin's, which has become problematic.

A second major goal of the Community Mental Health Centers movement was "to bring together the resources in a given area into a network with defined communication links."[71] It was this goal which operationalized the attempt to coordinate and integrate community resources in order to provide comprehensive care. The target population was defined to include all those in need of mental health services in a community; services were not limited by a disease category or age group, but centers were asked to emphasize services to children, the aged, alcoholics, and persons discharged from mental hospitals.

The objectives of the Community Mental Health Centers program were mandated by NIMH.[72] In order to be funded, a potential center had to offer five basic services:

- inpatient services
- outpatient services
- partial hospitalization, such as day care
- emergency services
- consultation and education services for community agencies and service deliverers.

Comprehensive centers were defined as those centers which could provide these five services and five additional ones:

- diagnostic services
- rehabilitation services, such as vocational education
- precare and aftercare services, such as home visiting
- training for professionals serving the mentally ill and mentally retarded
- research and evaluation.

The community mental health centers thus had an unmistakable emphasis on service delivery, to the relative neglect of research and training functions. However, community mental health centers have been instrumental in training psychologists, psychiatric residents, social workers, nurses, and paraprofessionals to work with the mentally ill.

Although the Community Mental Health Centers are not matrix organizations, they have experienced several problems of structure and governance which may be relevant to new center types.

- Basic Concepts

A 1969 survey of 11 centers revealed that "only two of these centers have come quite far along toward realizing . . . the goal of the community mental health center concept,"[73] that is, the supplantation of state mental hospitals. At the same time, the centers exhibited confusion about the basic concepts they were supposed to be implementing. Specifically, there was lack of clarity about the operational definitions of "comprehensiveness" and "continuity." Some centers had self-defined as comprehensive, even though they did not provide the ten services used by the federal government to distinguish comprehensive centers from less developed ones. Similarly, "continuity of care" was defined by the centers in two fairly divergent ways, as "continuity of therapist" or "continuity of administrative responsibility for the patient." Glasscote points out that, of the five basic services, community consultation (i.e., technical assistance) was the least understood and least practiced:

> Among the staffs of these centers we met few people who expressed an interest in "caretaker consultation," a term that has come to apply to attempts by mental health professionals to enhance the mental health knowledge and competence of non-mental health personnel so that they may themselves deal with their disturbed clients. We also found little interest in consultation as a means of primary prevention of mental illness . . . most of the professionals did not feel that the evidence for the possibility of primary prevention was sufficient to warrant spending much time in pursuit of it.[74]

- Alternative care modalities

In 1971, the results of site visits to all operating Community Mental Health Centers were summarized. It was found that "some centers have had difficulty in conceptualizing and implementing an effective partial care program."[75] This lapse in an otherwise strong structure is attributed to three factors. First, centers staff may have lacked knowledge of alternative modalities of care, their planning and implementation. Second, they may have lacked the motivation to initiate such a service. At the root of this may be the third factor: a paucity of third-party payments for this service.

- The necessity of team development

As recently as 1975, the development in some of the older health centers (and especially in those set in neighborhood health centers) of something approaching a matrix organization was described. At this stage, the realization of the advantages of a center depends on staff interface and team development thus becomes a challenge of the older Community Mental Health Centers:

When the health centers grow in size, teams become necessary to prevent "health care cliques" or fractionation of care along disciplinary lines. This horizontally organized interdisciplinary family care team can coexist and complement the usual vertical hierarchy. Through the team, interdisciplinary respect, communication, and joint planning can occur.[76]

- Alternative funding

In the late 1970's, it became apparent that community mental health centers would fail to secure alternative sources of the funds provided by federal staffing grants. This is sometimes seen as a failure of the seed money concept, which provides a majority of needed funding for a number of years and then removes it abruptly. The failure of Community Mental Health Centers to generate alternative funding resulted in a change in the funding structure which reduced federal input gradually. This underlined the center's responsibility to begin generating non-federal funds as early as possible in its development.[77]

- The Community Mental Health Center-University Connection

The connection between community mental health centers and academic departments of medical schools has been tenuous at best and contentious at worst. One effort to develop a Community Mental Health Center within an academic department of psychiatry[78] felt the following impacts: first, the relative weight placed on research, training, and service tends to equalize and the three orientations become more integrated. Hahneman Medical College treated 77% more psychiatric patients per year than it might otherwise have treated.

It trained several hundred psychiatrists and non-psychiatrist physicians in community psychiatry, and in addition, has trained art therapists and ministers. Finally, it quadrupled the number of research programs underway in the department, from fourteen to fifty; these research programs doubled the publishable output of the department.

A second impact has been the conversion of departmental staff from an initial wariness to a degree of acceptance. This is predicated upon a commitment, on the part of department heads and center directors, to a "Gestalt triad of service, training, and research, as a sum which is indeed different and richer than any of its component parts."[79] The attitude and approach of the leadership is the major determinant in this process of commitment.

IV. IMPLICATIONS FOR LONG TERM CARE GERONTOLOGY CENTERS

The center structure is appropriate for development of an academic base in gerontology and long term care since these fields involve a wide spectrum of thought and activity, requiring the involvement of a significant number of disciplines and specialties. The problems of the chronically impaired elder cannot be confronted and solved by any single type of actor or approach. The growing elderly U.S. population will impact every aspect of our culture and requires an academic base that can study its implications from multiple perspectives. The foregoing review of center theory and center types should provide the developers of Long Term Care Gerontology Centers with insights into some of the difficulties in establishing center mechanisms.

A single, major question remains: in light of the missions of the Long Term Care Gerontology Centers, and in light of the experience of others who have attempted to establish similar types of centers, how should Long Term Care Gerontology Centers be structured and governed?

In answering this question, we will address two key factors:

- How "temporary" is the center's mission?
- What resources will the center require to successfully fulfill its missions given its environment and the nature of its missions?

One argument frequently cited against providing centers with some of the traditional sources of power (i.e., resources) which adhere to other academic units is that centers are created to be flexible and to be "temporary." As we noted in our descriptions of other center programs, the availability of key resources critically affects the success and stability of a center. Scarce resources (beds, space, budget authority, hard dollars, appointment power) are the traditional sources of power in an academic environment. Universally accepted among academics as signs of power and prestige (as well as stability and opportunity), they are closely guarded by deans and department chairmen. By providing centers with too many of the trappings of power, it is said, they can become too stable, and too inflexible, thus subverting their purpose.

This is a cogent argument. If the center's mission is such that it will soon be accomplished, why should a school dedicate precious and scarce resources to institutionalizing its functions? Most deans and department chairmen are aware that resources, once committed, are difficult to retrieve. Who, for example, would contend that a faculty slot should be given to a program with a mission which can be fulfilled in one year?

However, the assumption behind the development of a "center" is that there is a significant body of knowledge to be acquired, and thus, the center has an enduring raison d'etre as a traditional department does. Centers (as we have described them) are not the mechanism-of-choice when faced with establishing an organization for single-solution problem solving. Assuming that a center

is being created to study a number of related problems over a period of time, it should be clear that the center will require both the stability of the traditional department and the flexibility to attract investigators for both short and long term investigations.

Over an extended period of time, projects, approaches, and solutions to some parts of the larger problem will be developed and the center will then address other aspects of the problem. Yet the overall mission of the center, to investigate problems and develop solutions within its field of study, will remain until the problems embodied by the field of study are elucidated and/or eradicated. The nature of problems in the fields of long term care and gerontology are such that they will require extensive study (into the forseeable future); it is this expectation that has been the basis for the establishment of Long Term Care Gerontology Centers. Indeed, it is clear that, in fostering the development of these centers, AoA seeks to promote an academic base capable of providing the field with enduring leadership, which will in turn direct the development, testing and evaluation of new configurations in care/service delivery and, in this and other ways, affect our understanding of the ways we can best meet the needs of this growing population segment.

Given that Long Term Care Gerontology Centers are being established with the dual goal of stability and flexibility, and given their unique missions, what type(s) of resources will centers require? Given the significant degree of difficulty in acquiring these scarce resources, we must examine the need for each of them in the context of this type of center. Are they <u>all</u> needed? For what purpose? And, from whom can they be obtained?

The latter question is usually not a difficult one to answer in an academic environment. Deans and department chairmen (in relative proportions) usually control access to scarce resources. However, in analyzing the needs of Long Term Care Gerontology Centers, one immediately notes that some of the resources which these centers require are not found in a traditional university/medical school setting.

It is clear, for example, that Long Term Care Gerontology Centers will require a variety of care-giving environments (i.e., skilled nursing facilities, intermediate care facilities, community hospitals, home care settings) in order to conduct research, education and service delivery demonstrations. These non-acute service delivery mechanisms are not part of most university environments (although we have heard of several proposals to develop one of these settings as an offshoot of at least one university system). Thus, there are resources (access to patients, clients and community care providing environments) which are not in the power of the university/medical school leadership to provide.

With the resulting recognition that many center resources can only be obtained in the community, there is a natural tendency to consider the possibility that Long Term Care Gerontology Centers may not require the kinds of authorities and resources we have described above and to suggest that the governance and structure of such a center will be radically different than other center models we have described. In analyzing this possibility, the experience of other joint academic/community enterprises described above serves as a caveat. In

these cases, weak institutional commitments and a lack of interest in rewarding the center's community focus prohibited their long term survival. Since there were no built-in rewards for a university-based investigator who undertook community-based activities, faculty were reluctant to become involved regardless of their interest in the field. Indeed, it should be noted that universities/medical schools reward a limited set of activities (i.e., publications, funded research, etc.) and community service is infrequently one of these. Thus, it is our conclusion that although substantial resources are required from outside the academic milieu, key resources which allow a center to recruit investigarors and reward faculty and staff are still exclusively available within the conventional university structure and must be obtained from that source in order for the center to survive.

Center success is also dependent upon the interest of individuals from a variety of disciplines in collaborative research, education and demonstration activities. Individual interest alone is insufficient to sustain prolonged involvement of investigators with other academic applications and other (perhaps, opposing) reward systems. Thus, center success is dependent upon the ability of the center to:

- attract the interest of senior investigators from a variety of disciplines
- recruit new investigators into the center of activities
- secure the cooperation of departmental chairmen to whom investigators report
- secure needed resources for investigators
- reward, directly or indirectly, these investigators.

Investigators are most likely to be attracted by:

- stability as evidenced by the potential for continuity of funding
- opportunity as evidenced by new research concepts, availability of Federal funding, availability of seed funding, and availability of other investigational resources (i.e., research materials, patients/clients, research settings: the spectrum of care settings noted above)
- the potential for collaboration with other investigators with similar interests
- the potential for rewards and incentives equal to those available through traditional academic departments (i.e., appointment, tenure, pay scale, etc.)

How important are these conditions? Must all of them be present in order to attract an investigator? This is obviously not the case. Clearly, a large number of interested individuals have been attracted to gerontology, long term care and geriatrics without the presence of some or any of these conditions. Yet, in order to attract, sustain and support multiple investigators, a center must today be able to compete effectively with traditional academic units. This competition is more important in some academic settings than in others. For example, medical school faculty are less likely to become involved in new academic enterprises if those projects do not exhibit adequate resources and commitments. Faculty from liberal arts and social science academic units appear to exhibit less concern over the presence or absence of the same resources and conditions. These attitudes may reflect the larger role of medical school department chairmen in the allocation of resources, and personnel within their department. Long Term Care Gerontology Centers which intend to involve physicians as an integral part of their staff will, therefore, need to obtain sufficient resources and commitments to attract their involvement.

Thus, while some suggest that it is possible to establish a Long Term Care Gerontology Center with only modest access to key resources, we suggest that the highest possible level of resources be obtained in order to insure that the center can attract and support investigators from the widest spectrum of disciplines. If, for example, a center is established with a resource base sufficient to involve social science academic units, it may still be inadequate to involve the medical science units. In this way, the desire of the Long Term Care Gerontology Centers to involve both types of units and their facilties, as well as the community, may be tested in the future.

This desire to involve the full spectrum of academic units and faculty has substantial implications for center structure, specifically, the position of the center within the university structure. As we noted above, center directors must be in a position to bargain with line department chairmen for faculty time, joint appointments and joint projects. This requires that centers and departments report to an individual who can arbitrate negotiations and disputes. In many types of centers this individual is the dean of the school. With Long Term Care Gerontology Centers, reporting to a single dean is probably insufficient since the center director will desire to involve multiple disciplines from schools under the purview of separate deans.

Several alternatives are likely to emerge in this case. The center director may report to multiple deans, to one or more vice-presidents, or, suggest, to the university president. While we expect that some centers will be structured so that they report at levels above an individual dean, it is important to caution that a reporting relationship to individuals higher in the university hierarchy than a dean (e.g., a Vice President or President) may diminish the center director's ability to relate and negotiate on equal terms with department chairmen or to gain access to resources which are most available at the level of a dean.

Thus, we conclude that successful Long Term Care Gerontology Centers are likely to:

- have substantial access to key resources in order to attract investigators from a variety of academic units
- have resources and promote conditions which will attract and support investigators from medical schools as well as social science schools
- report to a dean or other academic leader(s) who can arbitrate negotiations between the center director and line department chairmen for joint appointments, faculty time, and key resources.

Center structures of this type and access to the key resources indicated above are difficult to obtain. Centers will have to convince their institutions that their missions are enduring and valuable to the total direction of the institution. In the case of Long Term Care Gerontology Centers, we expect that many academic institutions will perceive the growth potential of this area. Morever, our recent field experiences led us to conclude that many universities have now been exposed to the center concept, understand its merits and will endorse its use under certain circumstances.

Long Term Care Gerontology Centers (indeed, all types of centers) require substantial investments of time, patience and human energy to develop within even the most accommodating of universities. Each new center development should be considered an innovative idea that will require time, support and frequently, external incentives to mature. Time is in the last analysis the quantity we have found to be in the shortest supply. These two factors may influence the acceptability of the center concept in universities considering the development of a Long Term Care Gerontology Center. Therefore, Long Term Care Gerontology Centers will need strong advocates, both internally and externally, to develop successfully. Past experience illustrates the importance of a supportive Federal agency. Past experience also illustrates the difficulties of developing a matrix mechanism that spans a single school. Long Term Care Gerontology Centers must span several schools and reach into the community. This will require political savvy, finesse, and substantial support of the highest levels of university administration. Clearly, an early commitment of resources to the development of such an enterprise is required for it to advance.

Is the sizable investment required to establish and sustain a center of this sort worthwhile? We believe centers developed around the right topic areas at the right times can have significant payoffs. Centers can mobilize long dormant faculty interests and enthusiasm. Frequently, they can catch the crest of a new wave of Federal investments simply by pulling together researchers with existing interests in collaboration. And, perhaps most importantly, they do appear to foster more rapid and significant development of new innovations and tecnhology. It is this synergy that makes centers a most valuable mechanism for the promotion of Federal interests in research

and development. If centers in the field of long term care can mobilize a diversity of talent and interest, they will do much to meet the challenges of the coming decades.

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A BRIEF ANNOTATED BIBLIOGRAPHY OF FURTHER READING ON THE CENTERS CONCEPT

Battelle Columbus Laboratories, Interactions of Science and Technology in the Innovative Process: Some Case Studies. (Washington, 1973)

This study reviewed innovations in the use of heart pacemakers, electrophologography, oral contraceptives, and other areas. It analyzes the significant and decisive events which had an impact on the acceptance of each innovation. Finally, it formulates a series of qualitative characteristics (of both the innovations and the settings in which they occurred) which optimized the chances of their acceptance.

Dyer, William G., Team Building: Issues and Alternative. (Reading, Mass., 1977)

This is an excellent summary of the need, the methods, and setting for team building in modern organizations. Dyer reviews the roots of team building in organizational development and projects some impacts of team building.

Ikenberry, Stanley O. and Renee C. Friedman, Beyond Academic Departments: The Story of Institutes and Centers. (San Francisco, 1972)

The authors of this book surveyed 125 centers of various types on university campuses across the country. They examined the origins of centers, the nature and scope of center functions and the variations in center structure and level of integration with the university. They note that a variety of societal, professional and institutional forces have contributed to the formation of centers. This study offers evidence that while centers fall over a whole spectrum of functions, structure and integration, they consistently provide an strong organizational alternative in interdisciplinary and innovative-laden fields of study.

Janger, Allen R., Matrix Organization of Complex Businesses. (New York, 1979)

This discussion of the matrix in corporations deals first with the reasons for developing a matrix organization. It examines possible motivations for the transformation from a traditional to a matrix structure. Janger forwards several alternative matrix designs. Finally, he discusses at length the issues of role specification, planning systems, and personnel support within the matrix.

National Institute of Mental Health, Planning for Creative Change in Mental Health Services: A Distillation of Principles on Research Utilization. Vol. I. (Rockville, Md., 1972)

This seminal study of utilization of research by practitioners (i.e. technology transfer) reviews the characteristics of innovations and organizations which condition acceptance of innovations. Finally, it reviews at length the literature of organization change with a view to improving the linkages between researchers and practitioners.